

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 July 2004 (15.07.2004)

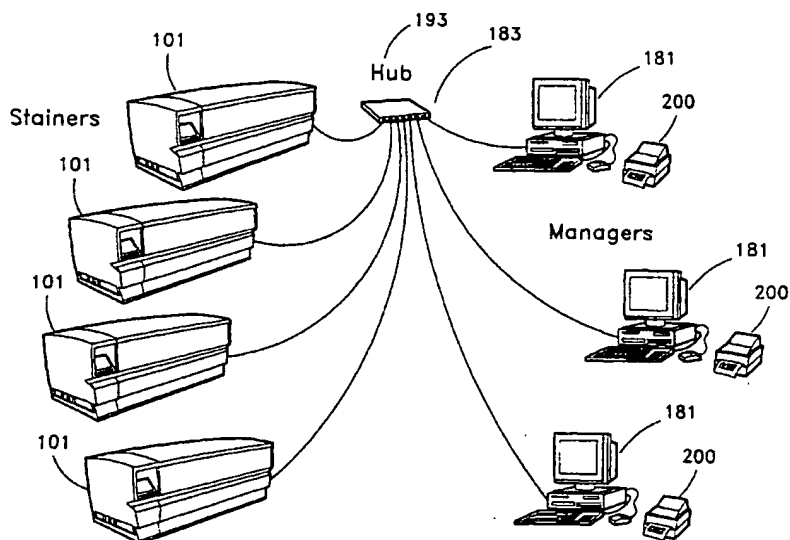
PCT

(10) International Publication Number
WO 2004/059288 A3

- (51) International Patent Classification⁷: **G01N 35/00**, 35/02, 1/10, 15/06, B32B 5/02, B01L 3/02, G05B 21/00, G01M 1/38
- (21) International Application Number: PCT/US2003/041022
- (22) International Filing Date: 22 December 2003 (22.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/435,601 20 December 2002 (20.12.2002) US
PCT/US03/40974 19 December 2003 (19.12.2003) US
PCT/US03/40591 19 December 2003 (19.12.2003) US
PCT/US03/40519 19 December 2003 (19.12.2003) US
PCT/US03/40518 19 December 2003 (19.12.2003) US
PCT/US03/40880 22 December 2003 (22.12.2003) US
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- (81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT (utility model), PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: ISOLATED COMMUNICATION SAMPLE PROCESSING SYSTEM AND METHODS OF BIOLOGICAL SLIDE PROCESSING



(57) Abstract: A sample processing system (101) that may be automated and methods are disclosed where a number of sample processing systems (101), such as stainer, may be connected to a number of separate full function computers (181) through a stainer network (183) that may be isolated from other communication traffic. A network configuration may permit scalability and addressability so that additional sample processing systems (101), additional separate full function computers (181), and additional other devices such as label printers (200) may be easily added to the system. One or more remote information links (171) may be provided so that information transfer on a continuous or perhaps constant basis can be accommodated.

WO 2004/059288 A3



(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
27 January 2005

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/41022

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 35/00, 35/02, 1/10, 15/06; B32B 5/02; B01L 3/02; G05B 21/00; G01M 1/38

US CL : 436/43, 46-48, 54, 180; 422/62-63, 67, 68.1, 100; 700/266, 275

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 436/43, 46-48, 180; 422/62-63, 67, 68.1, 100; 700/266, 275

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|---------------------------------------|
| A | US 2004/0033163 A1 (TSEUNG et al.) 19 February 2004, entire document | 1, 42 |
| A | US 6,387,326 B1 (EDWARDS et al.) 14 May 2002, entire document | 1, 42 |
| A | US 6,017,495 A (LJUNGMANN) 25 January 2000, entire document | 1, 42 |
| A | US 5,776,414 A (ITANI et al.) 07 July 1998, entire document | 1, 42 |
| A | US 5,573,727 A (KEEFE) 12 November 1996, entire document | 1, 42, 83, 120, 156, 190 |
| Y, P | US 2004/0002163 A1 (REINHARDT et al.) 01 January 2004, entire document | 1, 42, 83, 120, 156, 190 |
| X, P | US 2003/0215357 A1 (MALTERER et al.) 20 November 2003, entire document | 1-16, 20-24, 42-53, 83, 120, 156, 190 |
| Y, P | US 2003/0087443 A1 (PRESSMAN et al.) 08 May 2003, entire document | 1, 42, 83, 120, 156, 190 |
| Y | US 2002/0098595 A1 (LUBMAN et al.) 25 July 2002, entire document | 1, 42, 83, 120, 156, 190 |



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

10 November 2004 (10.11.2004)

Date of mailing of the international search report

10 DEC 2004

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------------|
| A | Us 6,800,249 B2 (DE LA TORRE-BUENO) 05 October 2004, entire document | 1, 42, 83, 120, 156, 190 |
| Y, E | US 6,735,531 B2 (RHETT et al.) 11 May 2004 | 1, 42, 83, 120, 156, 190 |
| Y, E | US 6,699,710 B1 (KONONEN et al.) 02 March 2004, entire document | 1, 42, 83, 120, 156, 190 |

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/41022

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
there is no claim 196, present in the application
3. ☒ Claim Nos.: 29-37, 65-66, 70-78, 90-92, 101-106, 108-119, 127-129, 138-143, 145-155, 162-189, 198-223
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐
☒

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US88/0022

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-41, drawn to a method of automated sample processing.

Group II, claim(s) 42-81, drawn to an automated sample processing system.

Group III, claim(s) 83-223, drawn to a method of automated sample processing.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I does not require the special technical feature of the Group II that is a first and second sample and a slide processing system.

The inventions listed as Groups I and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group III does not require the special technical feature of the Group I that is a first and second stand alone processing systems.

The inventions listed as Groups II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group III does not require the special technical feature of the Group II that is a first and second sample and a first and second slide processing systems.

Continuation of B. FIELDS SEARCHED Item 3:

East:

Keywords: computer, automat\$3, control\$4, stain\$3, robot, robotic, mechanical arm, remote link, slides, processing, paraffin